

NetSage: An Open, Privacy-Aware, Network Measurement, Analysis, and Visualization Service

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INDIANA UNIVERSITY

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INTERNATIONAL
NETWORKS
At Indiana University



NETSAGE

Joint project with UC Davis,
ESnet and U. Hawai'i

- Open, privacy-aware, network measurement, analysis, and visualization service
- Designed to address the needs of today's international networks
- Active and passive measurements over IRNC Backbones and Exchange Points
- Focus on privacy issues
- Longitudinal network data visualization services

3 NetSage use cases

1. **Current traffic patterns across IRNC links, and the ability to anticipate growth trends for capacity-planning purposes;**
2. **The main sources and sinks of large, elephant flows to know where to focus outreach and training opportunities; and**
3. **Where packet loss is occurring, whether the cause is congestion or other issues, and what impact it has on end-to-end performance.**



Privacy

- **Privacy is a top concern for many people**
- **Our plan is that we do not store any PII to long term storage ever**
- **Data collected that potentially has PII in it will be collected as close to the source as possible (such as a server directly attached to the router it is receiving it from)**
- **Data will be anonymized, aggregated and/or meta-tagged as appropriate before it is sent back to the central store over an encrypted connection**
- **We are forming a privacy committee consisting of people who are not directly part of the grant to advise us on privacy issues**

Data we're collecting

- **Active measurements using PerfSONAR**
 - **Throughput, loss, latency, and traceroute data**
- **Passive measurements**
 - **SNMP and (later) NetFlow/sFlow data**
 - **(Later-er) More in-depth flow analysis including TCP retransmit analysis from Bro**
- **Also hope to integrate alarm data from the IRNC NOC**
- **Data Anonymized to meet privacy concerns**

Questions/Comments?

- **Take aways:**
 - **Privacy**
 - **Utility**
 - **Cool looking**
- **Group Website:**
 - <http://internationalnetworking.indiana.edu/>
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